

Remarks

Claims 1-17 are pending in the application and subject to restriction.

Examiner alleges that the application contains three groups of inventions which are not so linked to form a single general inventive concept under PCT Rule 13.1:

Group I, claims 1-5 and 10-13, drawn to method for visualizing and quantitation proteins on a protein-binding membrane with a staining compound of formula I;

Group II, claims 6 and 7, drawn to a first composition comprising a formula I-stained protein bound to a protein-binding membrane; and

Group III, claims 14-17, drawn to a second composition, a kit comprising a protein-binding membrane and a staining compound of formula I.

It is noted that claims 8 and 9 have not been grouped. Claims 8 and 9 are directed to a method of reversing the staining procedure of claim 1, it is assumed that the subject matter would be grouped with Group I. Thus, claims 8 and 9 will be treated as grouped within Group I, for purposes of this response.

Applicants elect the claims of Group I (1-5 and 8-13) for prosecution. The election is made with traverse.

Examiner alleges that a number of the claimed inventions fail to make a contribution over the prior art, and are therefore not directed to a common special technical feature supporting unity of invention. Specifically, Examiner alleges that Bloch *et al.* discloses in Example 1 thereof a composition of a dye of applicants' formula I and a cellulose acetate membrane. This allegedly shows that the kit of Group III is known in the art. Examiner further alleges Bloch *et al.* teach the use of the membrane-dye composition for purifying proteins.

The special technical feature underlying the claims of the application is a method for visualizing protein bound to a protein-binding membrane by staining with a dye of formula I, and an assemblage of material for that purpose. This feature is not disclosed by Bloch *et al.*

Bloch *et al.* teaches a porous asymmetric membrane consisting of an acetyl cellulose material which has been modified to contain residues containing ionizable groups. The membranes are used for the separation of certain ionogenic substances from their solutions, or

from other ionogenic substances. In a working example (Example 1), a cellulose acetate membrane is cast, and then immersed in a 5% aqueous solution which contains a 1:2 complex chromium compound of a dyestuff depicted by the reference's formula 1.

It is respectfully submitted that Examiner has misconstrued the disclosure of Bloch *et al.* The reference does not disclose any of the claimed subject matter. The reference does not disclose a method for visualizing proteins utilizing a dye according to applicants' formula I. The dye of Bloch *et al.* Example 1 is not used to visualize proteins. It is used to treat a cellulose acetate membrane that does not contain any bound proteins. The dye in Bloch *et al.* Example 1 is merely used to functionalize a cellulose acetate membrane. The reference fails to teach staining proteins on a membrane with the formula 1 dye. Thus, Bloch *et al.* does not render the claims of Group I unpatentable.

Bloch *et al.* similarly fails to render the claims of Group II unpatentable. Claim 6, the base claim of Group II, is directed to a composition comprising at least one protein bound to a protein-binding membrane, wherein the protein has been stained with a staining reagent according to formula I. There is no disclosure in Bloch *et al.* of applying their formula 1 dye of Example 1 to a membrane having bound proteins, which application would result in a membrane having proteins that are both bound to the membrane and stained by the indicated dye. At best, Bloch *et al.* discloses a virgin cellulose acetate membrane which has been functionalized with the indicated dye in Example 1, col. 4.

Bloch *et al.* fails to render the claims of Group III unpatentable. Claim 14 defines a kit of a protein-binding membrane, and at least one compound of formula I as a staining reagent. There is not disclosure in Example 1, or elsewhere in the reference, of an assemblage of a protein-binding membrane and the dye disclosed in Example 1 of the reference. Bloch *et al.* simply discloses the treatment of a cellulose acetate membrane with dye, and does not describe a kit of those materials.

Claim 16 of Group III defines a kit containing a supply of protein-binding membranes and at least one compound of formula I as a staining reagent, further including one or more solutions of a protein standard of known concentration. There is no teaching or suggestion in Bloch *et al.* of including a set of protein standards solutions with a supply of a protein binding

membranes and a dye of applicants' formula I as a staining reagent. This is consistent with the objects of Bloch *et al*, since they do not utilize their formula 1 dye as a protein staining reagent, but merely for functionalizing an acetate membrane. There would be no incentive from these teachings to include, in combination with the disclosed cellulose acetate membrane, both the formula 1 compound as a staining reagent, and protein standards solutions for performing protein determinations.

Reconsideration and withdrawal of the lack of unity objection is respectfully requested.

Respectfully submitted,

CHRISTOPHER R. YONAN, *et al*.



DANIEL A. MONACO
Registration No. 30,480
DRINKER BIDDLE & REATH LLP
One Logan Square
18th and Cherry Streets
Philadelphia, PA 19103-6996
(215) 988-3312 - Phone
(215) 988-2757 - Fax
Attorney for the Applicants